International Workshop on Dynamical Systems and Applications (IWDSA 2019)
In Memory of Prof. Dr. Aydın Tiryaki
Gazi University, Ankara, Turkey, 3-4 May 2019

On the stability problem of differential equations in the sense of Ulam

S. Ogrekci[1], Y. Basci[2], A. Misir[3]

[1] *Amasya University, Amasya, Turkey, suleyman.ogrekci@amasya.edu.tr*
[2] *Abant Izzet Baysal University, Bolu, Turkey, basci_y@ibu.edu.tr*
[3] *Gazi University, Ankara, Turkey, adilm@gazi.edu.tr*

Abstract

In this paper we consider the stability problem of a general class of differential equations in the sense of Hyers-Ulam and Hyers-Ulam-Rassias with the aid of a fixed point technique. We extend and improve the literature by dropping some assumptions of some well known and commonly cited results in this topic, such as [1]. Some illustrative examples are also given to visualize the improvement.

Key Words: Differential equations, Stability theory, Hyers-Ulam-Rassias stability, Fixed point theory, Generalized metric spaces.

References

[1] S.M. Jung, A fixed point approach to the stability of differential equations $y' = f(x, y)$, Bull. Malays. Math. Sci. Soc., 33 (2010), 47-56.